WHAT IS CLAIMED IS:

1. A soft Cr-containing steel having a composition, on a % by mass basis, comprising:

C: from about 0.001% to about 0.020%;

Si: more than about 0.10% and less than about 0.50%;

Mn: less than about 2.00%;

P: less than about 0.060%;

S: less than about 0.008%;

Cr: from about 12.0% or more to about 16.0%;

Ni: from about 0.05% to about 1.00%;

N: less than about 0.020%;

Nb: from about 10 × (C + N) to about 1.00%;

Mo: more than about 0.80% and less than about 3.00%; and

Fe and incidental impurities,

wherein the contents of alloying elements, silicon and molybdenum, represented by Si and Mo, respectively, on a % by mass basis, satisfy the following formula (1):

$$Si \leq 1.2 - 0.4Mo. \qquad (1)$$

2. The soft Cr-containing steel according to Claim 1, wherein the content of Mo is more than about 1.50% and less than about 3.00% by mass in the composition.

3. The soft Cr-containing steel according to Claim 1,

further comprising, on a % by mass basis, at least one selected from the group consisting of Cu: from about 0.05% to about 1.00%, Ti: from about 0.02% to about 0.50%, V: from about 0.05% to about 0.50%, and B: from about 0.0005% to about 0.0100%.

4. The soft Cr-containing steel according to Claim 2, further comprising, on a % by mass basis, at least one selected from the group consisting of Cu: from about 0.05% to about 1.00%, Ti: from about 0.02% to about 0.50%, V: from about 0.05% to about 0.50%, and B: from about 0.0005% to about 0.0100%.

5. The soft Cr-containing steel according to Claim 1, further comprising W: from about 0.50% to about 5.00% by mass.

6. The soft Cr-containing steel according to Claim 2, further comprising W: from about 0.50% to about 5.00% by mass.

7. The soft Cr-containing steel according to Claim 3, further comprising W: from about 0.50% to about 5.00% by mass.

8. The soft Cr-containing steel according to Claim 1, further comprising Al: from about 0.02% to about 0.50% by mass.

9. The soft Cr-containing steel according to Claim 2, further comprising Al: from about 0.02% to about 0.50% by mass.

10. The soft Cr-containing steel according to Claim 3, further comprising Al: from about 0.02% to about 0.50% by mass.

11. The soft Cr-containing steel according to Claim 4, further comprising Al: from about 0.02% to about 0.50% by mass.

12. The soft Cr-containing steel according to Claim 1, further comprising, on a % by mass basis, at least one element selected from the group consisting of REM: from about 0.03% to about 0.10% and Zr: from about 0.05% to about 0.50%.

13. The soft Cr-containing steel according to Claim 2, further comprising, on a % by mass basis, at least one element selected from the group consisting of REM: from about 0.03% to about 0.10% and Zr: from about 0.05% to about 0.50%.

14. The soft Cr-containing steel according to Claim 3, further comprising, on a % by mass basis, at least one element selected from the group consisting of REM: from about 0.03% to about 0.10% and Zr: from about 0.05% to about 0.50%.

15. The soft Cr-containing steel according to Claim 4, further comprising, on a % by mass basis, at least one element selected from the group consisting of REM: from about 0.03%

to about 0.10% and Zr: from about 0.05% to about 0.50%.

16. The soft Cr-containing steel according to Claim 5, further comprising, on a % by mass basis, at least one element selected from the group consisting of REM: from about 0.03% to about 0.10% and Zr: from about 0.05% to about 0.50%.

17. The soft Cr-containing steel according to Claim 1, wherein regarding the state of Mo in the steel, a ratio of (112) diffraction intensity of the Laves phase, $(Fe,Cr)_2(Mo,Nb)$, to (111) diffraction intensity of Nb carbonitride, Nb(C,N), A value = $I\{(Fe,Cr)_2(Mo,Nb)\}_{(112)} / I\{Nb(C,N)\}_{(111)}$, is less than 0.4 based on X-ray diffraction of extraction residues of precipitates in the steel.